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## Continuous Confusion?

Suspense characterizes much of the medical care literature. Titles containing terms such as "comprehensiveness," "quality," and "continuity" evoke suspicions about content, but these may not be confirmed as the article evolves. In this issue of the Journal, Rogers and Curtis<sup>1</sup> review the variety of subjects subsumed under the rubric of "continuity" and accurately convey the wide variety of phenomenon to which the term has been applied. Their examination of the issue is useful, even though it did not lead them to propose any specific solution to the confusion. Instead, they argue for the "establishment and agreement on the definition," "conceptualization, operationalization and testing of the model," establishing actual levels of continuity in different settings, documenting the relationship between continuity and quality, and defining an optimum level of continuity. This is the charge to readers of the Journal.

At several points in their article, Rogers and Curtis make the distinction between "longitudinality" and "continuity." This distinction may prove useful in introducing clarity to the field. Proponents and scholars of primary care speak of a relationship between practitioner and patient which lasts over time. Alpert and Charney<sup>2</sup> employ the term "longitudinal responsibility" for this ongoing relationship which is present regardless of the presence or absence of particular problems or diagnoses. Longitudinality is a phenomenon involving both the availability of a regular source of care (place or professional) and a decision, by the patient, to seek care from that source whenever care is needed. Thus, the action of patients is a major determinant of the achievement of longitudinality. Longitudinality is intended to facilitate communication between practitioners and patients (by virtue of mutual knowledge about each other) so that the concerns of patient and practitioner are more readily and more easily explored. Easily distinguished from this "attitude" (so-called by Rogers and Curtis) is the notion of continuity: "an uninterrupted succession of events" or the existence of a mechanism to bridge the parts of an event. In medical care parlance, a "succession of events" is an episode of illness, and continuity is the means by which the separate parts of that episode (either the follow-up of an acute illness or the ongoing care of a chronic one) are joined. Continuity is a structural element (place, professional, medical record, or computer). The intent of continuity is to improve follow-up of patients' problems and facilitate efficiency in diagnostic workup and management. Patients have much less control over continuity than over longitudinality because their ability to assure that they see the same practitioner on follow-up is restricted by the tendency of the professional or the facility to determine the time and nature of the follow-up appointment.

Despite the conceptual distinction between these two phenomena of care, the literature on continuity contains articles which address both longitudinality (care over time regardless of the presence of specific pathology) and continuity (the way in which information about the diagnosis and management of a problem is conveyed from one visit to the next). In his recent review of methods to quantify "continuity," Steinwachs<sup>3</sup> distinguished those which determine the proportion of visits in a given

time period that are with a specific practitioner from those which take into account the sequence of practitioners. Application of the former gives information on the extent of use of a "regular source of care" regardless of the nature of the problem (longitudinality). The latter gives information on the extent to which one practitioner provides follow-up from one visit to the next (continuity). The need for follow-up of problems from one visit to the next is far from trivial. Data from the National Ambulatory Medical Care Survey<sup>4</sup> show that 62 per cent of visits to office based practitioners are by old patients with old problems—rather than new patients (15 per cent) or old patients with new problems (23 per cent). The disposition in three out of five visits is for the patient to return at a specified time.

Longitudinality is an essential element of good primary care. The building and maintaining of a long-term patient-practitioner relationship, regardless of whether there is a problem or what the problem might be, is at the heart of primary care. In primary care, appropriate specialist consultation may be expected to interrupt continuity of care for at least some episodes of illness. In contrast, continuity should characterize those aspects of secondary and tertiary care that involve management of an illness episode or chronic disease. Although specialist care often requires the building of a personal relationship, it is, by definition, oriented towards specific problems rather than towards total care of the patient over time.

Having a regular source of care that is independent of a specific problem appears to be conceptually and practically different from having a mechanism to assure that problems are adequately followed up from one visit to the next. Awareness of the distinction makes it possible to specify research issues which are amenable to investigation. For example:

1. Do patients value a regular source of care and is this reflected in their use of services for new problems?
2. Is this "longitudinality" reflected in better or more rapid recognition of new problems that patients may have?
3. Does continuity of practitioner aid in the management of problems? Can continuity of practitioner be replaced or enhanced by improvements or innovations in medical records? Or by some other mechanism which conveys information necessary for efficient follow-up?
4. Is continuity of practitioner associated with more satisfaction by patients and/or practitioners? Are practitioners who see their own patients on follow-up more or less likely to alter their modes of therapy because they see their failures as well as their successes?

Although it may never be possible to define medical care terminology with the precision characteristic of terms in the biomedical sciences, i.e., pH, ionic strength, it certainly would speed progress in the accumulation of knowledge if health care researchers used words in the same way. Confusion about and lack of standardization of terms is now a major problem. If "continuity" is used in different ways by different researchers, it is inevitable that some will show that "continuity" is a valuable feature of medical care and some will conclude the opposite. The results of such a situation are obvious and unfortunate: policy makers and others without

the time or inclination to delve into the reasons for the discrepancies will conclude that health services research has little to offer those who want to use it as a basis for making decisions.

At the very least there ought to be agreement that certain things that some investigators have used as measures of "continuity" should be designated by other terms. These include the extent of appointment keeping (more properly considered under the designation of "compliance" or "concordance"), the extent to which the process of care once initiated is completed (more properly considered under the rubric of "quality of the process of care") or the extent to which duplication of the procedures is minimized (which indicates the coordination of care rather than the mechanism to achieve it). Each of these features of care is important in its own right, but they all should be distinguished from both longitudinality (use of the regular source of care) and continuity (the bridging mechanism between visits for a specific condition or episode).

When there is agreement that there can be clarity in the concepts of continuity and longitudinality, there must be agreement on what to call them. There appear to be two possible alternatives: invent new terms (like the pH) or standardize the meaning of the old ones. Common language always seems preferable to an arcane one to which only technologists are privy. Terms such as continuity have the advantage of being familiar. Longitudinality is less familiar but it has been used. As an alternative to using longitudinality, letters of the alphabet, or Roman numerals might be used to connote the different types of relationship between practitioner and patient. Continuity A might be the (longitudinal) relationship over time regardless of the presence or absence of any particular problem; continuity B could be the relationship between practitioner and patient with a problem under care; continuity C might be the bridging mechanism provided by the medical record. The rest of the alphabet is available for other forms of continuity, such as those identified by Rogers and Curtis. But this may be too cumbersome, even more so than inventing new names.

In the search for clarity of meaning there is a risk of overemphasizing semantics and neglecting content. The goal, however, is to clearly understand those features of medical care which are most critical in the understanding, prevention, and management of illness and promotion of health. A concerted effort with a clear concept of the phenomena may be necessary to accomplish the goal. At the very least, it should make the task more efficient.

Groups such as the Health Services Research Group of the Medical Care Section (American Public Health Association) might undertake to define and name the important concepts in health care. If the effort were successful, the improvement in communication of knowledge should compensate for the loss of suspense in reading the literature.

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## Animal Bites—A Continuing Problem

Animal bites and the risk of rabies, with its frightening symptomatology, have plagued physicians since earliest recorded medical history. As recently as the last quarter of the 19th Century, medical practitioners knew of little more to do about such bites than their ancient Greek and Persian counterparts who applied bezoars and salted dog flesh to the wound in vain attempts to prevent the fatal, encephalitis of rabies.

As the world entered the 20th Century, a solution to this medical scourge appeared. Pasteur had just developed a vaccine for the prevention of rabies in man. The need for, and acceptance of, this new treatment was apparent in the rapidity with which Pasteur Institutes for the treatment of rabies were established, first in Europe and then in Asia, Africa, and America. These centers offered the practicing physician a means of coping with rabies exposure cases, and patients were quickly referred to the centers which manufactured and administered millions of doses of Pasteur's new biologic. Although use of the crude brain tissue vaccine carried with it a significant potential for inducing neuromuscular reactions, the risk to the patient was considerably less than that of withholding treatment. Thus there developed a general trend toward generous use of vaccine, especially in areas like the United States where rabies seemed to run rampant through the animal populations.

In succeeding years, improvements in vaccines were made and, by the 1960s, a significantly safer avian embryo vaccine had come into general use in this country. Armed with a relatively safe and potent vaccine, the physician's dilemma of how to cope with animal bite victims appeared to be resolved. Medical schools taught, and public health authorities reinforced, the dictum that bite victims should be given immediate antirabies prophylaxis. Today, as a consequence of this policy, 30,000 persons each year receive the rigorous, costly, and sometimes hazardous antirabies treatment.<sup>1</sup>

Progress in animal rabies control and the accumulation of epidemiologic knowledge over the past 25 years have reduced the risk of rabies in many bite situations. In fact, the risk of rabies is now so low that unwarranted overtreatment may be the greatest public health problem associated with this disease. Dog vaccination and control programs have virtually eliminated the dog as a source of human rabies except along the U.S.-Mexico border, our last remaining areas of enzootic dog rabies in this country. Recent epidemiologic information has shown that rodents are only rarely infected,

and their bites almost never warrant antirabies prophylaxis.<sup>2</sup> Even wild carnivore bites, although always a matter of concern, are now known to carry a variable risk of rabies transmission. Surveillance has shown that rabies is not distributed randomly in wild animals, but instead has well-defined geographic and species specific distributional patterns; these are circumscribed, change slowly, and are often predictable in movement.

Although these recent changes in our understanding and control of animal rabies should have had a marked effect in reducing the frequency of human rabies prophylaxis, this has not yet occurred. Physicians, when presented with an animal bite, too often continue to recommend treatment routinely rather than discriminating between bites which carry a risk of rabies and those which carry no such risk.

Several factors tend to promote overtreatment. First, the average practitioner cannot reasonably be expected to have an in-depth current knowledge of the many parameters which influence the probability of rabies exposure; second, medico-legal concerns may cause the physician to opt for treatment even if he or she believes it medically unnecessary; and third, overreaction of the bite victim to fear of rabies may cause the victim to pressure the physician for treatment in spite of an insignificant exposure risk.

A clear need exists, then, to provide the practitioner with an accurate assessment of the risk of rabies in bite exposures, with the best current treatment recommendations, and with some protection against potentially disastrous litigation should following these recommendations result in legal proceedings against him. In addition, the public needs to be better educated about the declining risks of rabies from biting animals.

Responsibility for providing such support and education rests with the public health agencies and health officials who for years have attempted to inform and assist practitioners. Updated treatment recommendations are distributed periodically; scientific articles, often containing simplistic treatment algorithms, have been published to redundancy; and rudimentary attempts have been made to categorize the country into high, low, or no risk rabies areas. Taken collectively, these efforts have not been adequate.

A more effective approach, currently in limited but increasing use, is described by Mann, et al, in New Mexico in this issue of the Journal.<sup>3</sup> The New Mexico Health Department has established a consultation-biologics distribution system through which practitioners can request and get